

WHAT IS CLAIMED IS:

1. A voltage control oscillator (VCO) comprising:
  - an L-C tank circuit;
  - a negative resistance generator operational to oscillate at a frequency determined by the L-C tank circuit, the L-C tank circuit and the negative resistance generator together forming a VCO core; and
  - a VCO core current source comprising at least one passive resistor, and devoid of capacitors, inductors and active components.
2. The VCO according to claim 1, wherein the negative resistance generator comprises at least one pair of cross-coupled CMOS transistors.
3. The VCO according to claim 1, further comprising a CMOS transistor configured to act as a capacitor and to provide filtering of VCO power supply noise.
4. The VCO according to claim 1, further comprising a CMOS transistor in series with the at least one passive resistor, and operational to selectively turn the VCO core on and off.
5. The VCO according to claim 1, further comprising a CMOS transistor in series with each of the at least one passive resistors, wherein the series CMOS transistors together are configured to selectively control the VCO core bias current.

6. A voltage control oscillator (VCO) comprising:
  - a tuning circuit;
  - a negative resistance generator operational to oscillate at a frequency determined by the tuning circuit, the tuning circuit and the negative resistance generator together forming a VCO core; and
  - a VCO core current source comprising at least one passive resistor, and devoid of capacitors, inductors and active components, wherein the current source operates to provide a VCO bias current.
7. The VCO according to claim 6, wherein the tuning circuit comprises an L-C tank circuit.
8. The VCO according to claim 6, wherein the negative resistance generator comprises at least one pair of cross-coupled CMOS transistors.
9. The VCO according to claim 6, further comprising a CMOS transistor configured to act as a capacitor and to provide VCO bias current noise filtering.
10. The VCO according to claim 6, further comprising a CMOS transistor in series with the at least one passive resistor, and operational to selectively turn the VCO core on and off.
11. The VCO according to claim 6, further comprising a CMOS transistor in series with each of the at least one passive resistors, wherein the series CMOS transistors together are configured to selectively pass a bias current through its respective passive resistor to control the VCO core bias current.

12. A voltage control oscillator (VCO) comprising:  
oscillating means for oscillating at a desired frequency;  
tuning means for controlling the desired frequency, the oscillating means and the tuning means together forming a VCO core;  
biasing means for providing a VCO core bias current, wherein the biasing means is devoid of capacitors, inductors and active components.
13. The VCO according to claim 12, wherein the oscillating means comprises a negative resistance generator.
14. The VCO according to claim 12, wherein the oscillating means comprises at least one pair of cross-coupled CMOS transistors.
15. The VCO according to claim 12, wherein the tuning means comprises a tank circuit.
16. The VCO according to claim 15, wherein the tank circuit is an L-C tank circuit.
17. The VCO according to claim 12, wherein the biasing means comprises a single passive resistor.
18. The VCO according to claim 17, further comprising at least one CMOS transistor configured to act as a capacitor and to provide filtering of VCO power supply noise.
19. The VCO according to claim 17, further comprising a CMOS transistor in series with the single passive resistor, and operational to selectively turn the VCO core on and off.
20. The VCO according to claim 12, wherein the biasing means comprises a plurality of passive resistors.

21. The VCO according to claim 20, further comprising a CMOS transistor in series with each passive resistor, wherein the series CMOS transistors together are configured to selectively activate the passive resistors to control the VCO core bias current.
22. A method of controlling a voltage control oscillator (VCO) phase noise, the method comprising the steps of:
  - providing a VCO core; and
  - generating a self-bias current for the VCO core via a resistor bias current source that is devoid of capacitors, inductors and active components.
23. The method according to claim 22, further comprising the steps of:
  - providing means for programming the resistor bias current source; and
  - programming the resistor bias current source to selectively control the bias current to the VCO core.